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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/725,030	11/29/2000	Ashley Stuart Davis		8960

7590 05/24/2005

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EXAMINER	
LUKTON, DAVID	
ART UNIT	**PAPER NUMBER**
1653	

DATE MAILED: 05/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/725,030	DAVIS ET AL.	
	Examiner	Art Unit	
	David Lukton	1653	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 May 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *26-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *26-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/6/05 has been entered.

Pursuant to the directives of the response filed 5/6/05, claims 4 and 8-25 have been cancelled, and claims 26-29 added. Claims 26-29 are now pending.

✧

The response filed 5/6/05 contains the following statement:

> "As a preliminary matter, Applicants request that the previous request for priority to U.S. Serial No. 09/258,732 be withdrawn. Accordingly, the present application has no claim for priority."

At the present time, this will be viewed as an informal request. A substitute oath/declaration (accompanied by the requisite fee) will be required for the requested change to be made of record.

✧

The following is a quotation of the first paragraph of 35 U.S.C. §112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it in such full, clear, concise and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 28-29 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 26 recites that division of any and all cell types will be inhibited by IAABE. This would include fibroblasts, T-cells, red blood cells, lymphocytes, neuronal cells, epidermal cells, etc. It does not appear that descriptive support exists for inhibiting division of any and all cell types.

Claim 28 recites that IAABE can inhibit division of a helminth cell. However, there does not appear to be descriptive support for this. The following passage (page 2, last 5 lines) is noted:

> "In addition, the fact that so many other tubulin ligands have applications in anti-restenosis, anti-fungal, anti-helminths and anti-gout chemotherapies there is a strong likelihood that BAABE and IAABE will likewise have potential in these areas. In support of this hypothesis it was recently found that IAABE has anti-trypanosome activity (J. G. Bekesi, 1999), following this argument other diseases may be treatable with these compounds."

In view of the foregoing, there is an argument to be made that descriptive support exists for treating a helminth infection. However, this is not the same as an assertion that division or mitosis of any and all cell types within a helminth organism will be inhibited by the IAABE.

Claim 28 recites that IAABE can inhibit division of a "cell involved in restenosis" and a "cell involved in gout". Certainly, there is no explicit

recitation of the phrases at issue. But it also does not appear that the phrases are implied anywhere. Further, there is no explanation provided as to how or where one draws the line between a cell that is involved (in restenosis or gout) and a cell which is not. Similarly, there is no descriptive support for inhibiting division of a "cell involved in myelodisplasia syndrome" (claim 29).

✦

Claims 26-29 are rejected under 35 U.S.C. §112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claims 26-28 recite that the division of any cell type can be inhibited. This would include any and all cells, healthy or not. Applicants have demonstrated inhibition of mitosis of a few cell types including CEM cells, EL4 lymphoma cells, and prostate carcinoma cells. However, it does not follow therefrom that mitosis of any and all cell types will be inhibited.

As stated in *Ex parte Forman* (230 USPQ 546, 1986) and *In re Wands* (8 USPQ2d 1400, Fed. Cir., 1988) the factors to consider in evaluating the need (or absence of need) for "undue experimentation" are the following: quantity of experimentation necessary, amount of direction or guidance presented, presence or absence of working examples, nature of the invention, state of the prior art,

relative skill of those in that art, predictability or unpredictability of the art, and breadth of the claims.

It is the examiner's assertion that merely because one can demonstrate inhibition of mitosis of 2 or 3 tumor cell types, it does not follow therefrom that mitosis of any and all cell types will be inhibited. One can look to literature on apoptosis inhibition for indications of such unpredictability. For example, Fang X. (*Biochemical Journal* **352 Pt 1** 135-43, 2000) discloses that lysophosphatidic acid inhibits apoptosis in fibroblasts; at the same time, Steiner M. R. (*Annals of the New York Academy of Sciences* **905** 132-41, 2000) discloses that lysophosphatidic acid induces apoptosis in neuronal cells. Thus, if a determination is made that a given compound will inhibit apoptosis of a given cell type, the skilled artisan cannot predict the cell types in which apoptosis will be inhibited, and the cell types in which apoptosis will be induced. This conclusion is reinforced by the findings of Tsuchiyama Y (*Kidney International* **58** (5) 1941-52, 2000) who discloses that while dexamethasone induces apoptosis in both CD8+ cells and CD4+ cells, Galectin-9 induces apoptosis in CD8+ cells, but fails to induce apoptosis in CD4+ cells. The mechanism of action of the compounds disclosed in the foregoing references may not be identical to that of IAABE, but the point is that if one can demonstrate inhibition of cell division in one cell type, one cannot "predict", on that basis, that inhibition of mitosis of all cell types will occur.

Further, there is no guidance as to which cell types will be affected by the IAABE. In fact, the implication of the specification is that only certain types of cancer cells and cells of parasitic organisms will be affected. This conclusion is reached because the specification conveys that mammals afflicted with certain types of cancer can be successfully treated by the disclosed compounds. If the IAABE were effective to inhibit mitosis of all cell types, (e.g., fibroblasts, T-cells, red blood cells, dermal cells), the ensuing illness induced thereby would be more severe that the disease prior to treatment. Thus, the implication of the specification is that only certain cell types are affected by the IAABE, and not others, but the specification does not explain which cell types will be affected and which will not. Accordingly, guidance for the claimed invention is lacking. [Claim 29 is rejected because of the phrase "cell involved in myelodisplasia syndrome"].

In view of the absence of guidance, insufficiency of working examples, nature of the invention, state of the prior art, or unpredictability of the art, and breadth of the claims, "undue experimentation" would be required to inhibit mitosis in any and all cell types.

✦

Claims 26-29 are rejected under 35 U.S.C. §112 second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- The claims assert that inhibition of cell division can be achieved by contacting a cell with IAABE. The claims, however, are indefinite as to whether an effective amount is used, or whether an amount which is less than effective is used. Is it the case that the claims encompass the use of ineffective amounts of the IAABE...?
  It is suggested that the phrase "effective amount" be inserted into claim 26.

- Claim 28 recites the phrase "cell involved in restenosis" and "cell involved in gout". Claim 29 recites the phrase "cell involved in myelodisplasia syndrome". What are the criteria for deciding whether a cell is at least tangentially involved in one of the recited disorders or not? In considering the various biochemical processes involved, how far "upstream" or "downstream" can one go in determining "involvement"...?

✦

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this action.

A person shall be entitled to a patent unless -

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 26-29 are rejected under 35 U.S.C. §102(a) as being anticipated by Davis (*Neoplasia* 1(6) 498-507, 1999).

Davis discloses haloacetamido benzoyl ethyl esters, including the iodo compound. Also disclosed is inhibition of mitosis of various cell types. The claimed invention is substantially described by the reference.

Thus, the claims are anticipated.

Given the statement by applicants' counsel that the previous priority claims are relinquished, the cited reference becomes available prior art.

✦

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Lukton whose telephone number is 571-272-0952. The examiner can normally be reached Monday-Friday from 9:30 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jon Weber, can be reached at 571-272-0925. The fax number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-1600.

DAVID LUKTON
PATENT EXAMINER
GROUP 1800